

Water Fluoridation Information Found on the World Wide Web

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Abstract

Objective: There is much controversy over the fluoridation of community water supplies. This study surveyed the informational content of internet sites on the World Wide Web (WWW) regarding water fluoridation.

Methods: One hundred websites were identified and 59 were evaluated with a 6 point scoring system using predetermined criteria.

Results: Of these 59 sites, 54% recommend water fluoridation as compared to 31% that oppose it.

Conclusions: The informational content of WWW sites may range from factual, to unsubstantiated opinions, to frank fraud. However, this information is presented to the public indiscriminately. The informational content of the WWW contains varied views and recommendations for community water supply fluoridation. Public health officials and practicing physicians should be aware that the internet WWW may influence public opinion.

Introduction

The Internet World Wide Web (WWW) is one of the fastest growing industries in the world. According to a 1999 survey by Healthon Corporation,¹ regular online activity by physicians had increased 42% just in the previous three months and 85% of the physician respondents said they used the Internet. Not only is the Internet an important tool for physicians, but an important health resource for consumers. Of the 88 million adults in the United States currently searching the Internet, about 60 million looked for health information in 1998, according to a survey by Louis Harris and Associates Inc.² The Internet has become one of the most efficient ways for a patient to research on health topics.

There are many reliable sites accessible on the Internet that a patient can use. However, there is no content review control on the Internet WWW, which contains informational sites that range from being factual, to unsubstantiated opinions, to frank fraud. These web sites may appear to originate from an authoritative source, but it may be difficult for the public to determine which sites to believe. Fluoride has been shown to be effective in reducing the incidence of dental caries and reversing the progression of existing lesions. It has also been shown to cause enamel fluorosis if an excess of fluoride has been ingested during critical periods of tooth development.³

There is controversy over the benefits and efficacy of fluoridation of community water supplies. Community water fluoridation represents the broadest and most effective means of public fluoridation, but there are concerns related to the potential adverse effects. The purpose of this study is to survey the informational content of websites on the World Wide Web pertaining to the topic of water fluoridation.

Methods

A list of the first 100 websites was compiled using the Google search engine (www.google.com) on February 15, 2003. The search phrase used was "water fluoridation". A data table was constructed that contained the URLs for the 100 sites.

The informational content of the identified web sites was surveyed on 12 general items related to community water fluoridation:

1. Water fluoridation is recommended at optimal dosage.
2. Water fluoridation is cost effective.
3. Water fluoridation improves a person's quality of oral-health.
4. Water fluoridation improves dental cavity resistance.
5. Water fluoridation increases risk of hip fractures and/or osteoporosis.
6. Water fluoridation increases risk of osteosarcoma/cancer.
7. Water fluoridation increases risk of arthritis.
8. Water fluoridation causes dental fluorosis.
9. Water fluoridation causes birth defects.
10. Water fluoridation affects a person's Intelligence Quotient score.
11. Water fluoridation is not needed due to adequate supply of natural fluoride in water.
12. Water fluoridation is not needed due to other means of fluoride supplementation.

A 0-6 point system was used to evaluate the informational content of the web site:

- 1) Recommends it/Agrees with statement
- 2) Recommends it/Agrees with under limited circumstances only

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- 3) Recommends against it/Disagrees with statement
- 4) Recommends against it/Disagrees with under limited circumstances only
- 5) Both sides discussed, does or does not agree/disagree with both sides
- 6) Only superficial discussion with no recommendations for or against or agreement/disagreement
- 0) Not Discussed

Web sites were excluded from scoring if: a) The site contained no information pertinent to the statements other than links to other water fluoridation sites. b) The site referenced information from a previous site or article used in a previous site. c) The site was a message board (a forum where opinions and feelings are displayed), and it did not contain any information originating from the sites hosts or authors. d) The site was written in a non-English language. e) The site was a broken link or contained no information pertinent to the statements.

Results

Of the 100 websites, 59 sites provided information pertaining to the statements. Of the 41 sites which were excluded: 10 sites were links to other water fluoridation sites, 16 sites referenced information from a previous site or articles used in a previous site, 1 site was a message board, 1 site was written in a non-English language, and 13 sites were broken links or provided no information pertinent to the evaluation. The informational content of the web site scores are tallied in Table 1.

An estimated 51% of 59 websites provided information supporting community water fluoridation, compared to 31% which oppose it. 44% of the web sites agree that water fluoridation is cost effective and improves a person's quality of oral health. 54% acknowledge that fluoride helps prevent dental caries while 32% acknowledge that fluoride ingested in excess quantities causes dental fluorosis. 25-27% recognize an increased risk of hip fractures and/or osteoporosis and an increase risk of osteosarcomas. 68-73% of the sites do not discuss the possible risks of arthritis, birth defects, and the effects on a person's IQ level.

Discussion

The informational content of the World Wide Web contains varied views and recommendations for community water supply fluoridation. Public health officials and practicing physicians should be aware that the internet WWW may influence public opinion. Efforts to initiate, maintain or discontinue community water fluoridation programs can be swayed by this information.

References

1. Healthon Corporation: dramatic increase in number of medics online. Nua Internet Surveys, www.nua.ie/surveys. 7 May 1999.
2. Bennett A. Surveys Find More Physicians Online. Family Practice Management 1999; 6:6:50-51.
3. Centers for Disease Control and Prevention (CDC). Recommendations for Using Fluoride to Prevent and Control Dental Caries in the United States. Georgia: Morbidity and Mortality Weekly Report, Recommendations and Reports. 2001;50 (RR-14).

Table 1.— Tabulation of scores for each evaluation question (n=59). A 0-6 point system was used to evaluate a website's position on water fluoridation: 1=Agrees with statement,2=Agrees with statement under limited circumstances only,3=Disagrees with statement,4=Disagrees with statement under limited circumstances only,5=Both sides discussed, doesn't agree/disagree, or agrees with both sides,6=Only superficial discussion with no agreement/disagreement,0=Not Discussed.

Question	1	2	3	4	5	6	0
Water fluoridation is recommended at optimal dosage	30 (51%)	2 (3%)	18 (31%)	0	7 (12%)	2 (3%)	0
Water fluoridation is cost effective	26 (44%)	2 (3%)	7 (12%)	1 (2%)	2 (3%)	2 (3%)	19 (32%)
Water Fluoridation improves a person's quality of oral health	26 (44%)	0	7 (12%)	0	2 (3%)	3 (5%)	21 (36%)
Water fluoridation improves dental cavity resistance	32 (54%)	4 (7%)	16 (27%)	0	3 (5%)	0	4 (7%)
Water fluoridation increases risk of hip fractures and/or osteoporosis	16 (27%)	0	8 (14%)	6 (10%)	4 (7%)	2 (3%)	23 (39%)
Water fluoridation increases risk of osteosarcoma/cancer	15 (25%)	0	14 (24%)	3 (5%)	4 (7%)	5 (8%)	18 (31%)
Water fluoridation increases risk of arthritis	9 (15%)	0	2 (3%)	1 (2%)	3 (5%)	2 (3%)	42 (71%)
Water fluoridation causes dental fluorosis	19 (32%)	10 (17%)	5 (8%)	9 (15%)	2 (3%)	0	14 (25%)
Water fluoridation causes birth defects	6 (10%)	1 (2%)	4 (7%)	0	2 (3%)	3 (5%)	43 (73%)
Water fluoridation affects a person's level of intelligence	11 (19%)	1 (2%)	3 (5%)	0	2 (3%)	2 (3%)	40 (68%)
Water fluoridation is not needed because of adequate supply of natural fluoride in water	10 (17%)	1 (2%)	16 (27%)	6 (10%)	3 (5%)	1 (2%)	22 (37%)
Water fluoridation is not needed because of other means of fluoride supplementation	12 (20%)	0	8 (14%)	6 (10%)	2 (3%)	1 (2%)	29 (49%)